Feedback for the Future: Building a Classroom Observation Tool for the TCU Community

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Technology is changing the landscape of higher education. As the editors of this special issue have noted, technology has been particularly useful when trying to solve problems. At Texas Christian University (TCU), we employed technology to create a tool that would help standardize the evaluation of teaching while still offering enough flexibility for discipline-specific activities, innovative methods, and non-traditional classrooms. Our tool provides a robust, secure, and enduring record of the classroom experience, thereby facilitating rich and ongoing discussions about teaching and learning. In this article, we discuss the process of designing and implementing a digital classroom observation tool that provides both standards and structure to the observation process while still honoring a diversity of classroom experiences.

Technology is clearly changing the landscape of higher education in many ways. As the editors of this special issue have noted, technology has been particularly useful when trying to solve problems. At Texas Christian University (TCU), we employed technology to create a tool that would help standardize the evaluation of teaching while still offering enough flexibility for discipline-specific activities, innovative methods, and non-traditional classrooms. As is common practice among colleges and universities, the faculty at TCU observe their colleagues for a variety of formative and summative reasons: to improve their own teaching; to help improve the teaching of their peers; or to facilitate a formal assessment for tenure, promotion, or retention. While our focus here is on observational feedback, we are cognizant that good teaching extends beyond what can be observed in a single class session. Indeed, a robust view of the work of teaching includes attention to course design, work completed by students outside of class, supplementary materials, and feedback provided to students (Atkinson & Bolt, 2010; Harris, Farrell, Bell, Devlin, & James, 2008; Thomas, Chie, Abraham, Raj, & Beh, 2014).

However, teaching observations are the vehicle by which many instructors receive feedback on the quality of their teaching, the foundation for many conversations that faculty developers have with instructors about teaching, and a metric used by many administrators to determine teaching quality. This process is unlikely to change in the future. What will change is how that data is collected, shared, and stored. Our digital observation tool improves the quality of teaching observation feedback, the ease of completing and reviewing observations, and the way in which these observations are retained for ongoing individual and programmatic evaluations. In an era of ever-leaner university budgets paired with an increasing reliance on data in university decision-making processes, these efforts ensure that the way we approach teaching observations keeps pace with the technological and logistical changes facing our faculty. Moreover, as a small faculty development center on a growing campus, we needed to use our limited resources for maximum effect. We saw a chance to use technology to solve the problems related to the training and support of faculty as they complete these teaching observations as well as the problems related to the review and retention of said teaching observations. The future of faculty development will require embracing technology-focused solutions that add value to those elements, like teaching observations, that form the core of our work.

Our campus team of Faculty Developers from the Center of Teaching Excellence and Applications Developers from Information Technology came together to build a new digital observation tool that promotes best practices and brings clarity to the peer observation process. Leveraging the ubiquity and user-friendliness of tablet devices, we created a device-agnostic tool that allows the user to sketch the classroom layout; add basic details about the class on a standardized set of observation criteria; and then enter detailed, open-ended and time-stamped comments. Our tool allows the observer to record both qualitative and quantitative data simultaneously, thereby capturing a robust record of the classroom experience with minimal distractions.

We had initially considered an app, but opted for an msite (or, mobile responsive web application) for several reasons. First, an msite can be used on all devices and platforms, including iPads and iPhones running iOS, smartphones and tablets running Android, and laptop and desktop computers running Windows or Mac OS. It simply requires an Internet browser and an Internet connection. Next, a dedicated web app is both easier to maintain and less costly because TCU need only provide for our limited, internal users. Finally, making an msite was a quicker development process than creating a dedicated mobile application. Overall, an msite was the right choice for our campus community, considering resources available and our campus users.

As we move faculty development practices into the future, it is important to draw on the rich foundation of scholarship and evidence-based practices that inform current classroom observation methods. Centra (2000) suggests that those in the best position to judge the quality of learning and instructional practices are well-informed colleagues; Hanson (1993) found that feedback from subject matter experts and non-specialists was equally reliable and valid; and Atkinson and Bolt (2010) note the benefits of using an outside expert, such as a faculty developer, to reduce faculty workload and increase impartiality. Faculty developers, however, have limited time and resources. As Atkinson and Bolt acknowledge, it is often not feasible to have them conduct all teaching observations campus-wide on an ongoing basis. On our campus, as on many campuses, observations conducted by colleagues are the norm. We thus knew that we wanted several open-ended fields so that disciplinary expertise and content-specific pedagogy would be appropriately acknowledged. We balanced this desire with specific entries about portions of the class session and the instructor's affect both so that non-specialists from outside or inside the department would be guided in data collection and so that even those who might feel the pull of departmental or disciplinary rifts might take note of all aspects of the class session.

Gosling (2002) identifies three models of teaching observation: evaluation, development, and peer review. The evaluative model has assessment at its core and is shaped by the potential consequences associated with the power imbalance between the observer and the instructor; the development model has experts (content experts or faculty developers) providing feedback with the goal of reviewing or improving classroom performance; and the peer review model has colleagues observing one another in a spirit of mutual reflection and growth-oriented feedback. While Gosling asserts that these are three distinct models, parsing the developmental model and the peer review model can be tricky in practice, especially once institutional exigencies intervene and teaching observations become metrics for other departmental or university decisions.

As the above research demonstrates, peer observation of teaching is not without its challenges, especially when it is employed for both formative and summative evaluation, as it is on our campus. Raoula Arreola (2007) speaks to these challenges directly in his *Developing a Comprehensive Faculty Evaluation System* as he cautions against using peer observation for "*anything other than personal feedback to the instructor*," an approach akin to the peer review model articulated by Gosling (2002). Of course, Arreola acknowledges that peer observation is often built into the faculty evaluation process at universities, so he offers best practices like developing a reliable observation checklist, assembling a peer observer team, and training the peer observer team. As our team worked to develop the TCU observation tool, we kept these suggestions in mind. We spoke with higher administration and faculty evaluation committees; we wanted to be sure institutional values and best practices were at the heart of the project. In this manner, our observation tool was built with the intention of occupying the space between the development model and the peer review model. Designed by faculty developers, the tool can be used by disciplinary colleagues and respects faculty workload by making, completing, and retaining the observation as easy as possible. It also provides for impartiality by focusing observations on a standardized set of questions, thus setting the stage for a constructive and reflective post-observation conference between colleagues.

We were also particularly attuned to the research addressing reliability issues and peer review of teaching. In *Peer Review of Teaching,* Nancy Chism (2007) explains peer observation is "most prone to reliability problems, often the result when uninformed peers make brief visits and report from the perspective of their own biases." To address these issues, she recommend a peer review process that involves the "gathering of specific information" and "extensive notes" and provides a solid record for reflection before a follow-up meeting. We built these features into the observation tool, employing technology to drive reviewers to specific information and providing a field that would time-stamp notes, thereby providing robust data for a post-observation discussion.

As scholarship on peer review of teaching indicates, feedback provides a learning experience for both the observer and the instructor: an enhanced understanding of one's own teaching can be gained from being an observer as well as being observed (Hammersley-Fletcher & Orsmond, 2005; Martin & Double, 1998). While there is a potential for tacit knowledge transfer during the course of completing the teaching observation, much of the benefit is found in the reflective post-observation conversation (Atkinson & Bolt, 2010; Hammersley-Fletcher & Orsmond, 2004). In particular, peer observations are the precursor to a mutually beneficial reflective discussion from which both parties emerge with new understandings about teaching and learning (Gosling, 2002). Ideally, the observer and the instructor would engage with what good instruction could look like for that department or topic, guided by the fields on the observation tool. For those receiving the observation, Bell (2001) details a reflective practice model in which feedback from others is a central element in improving teaching. Indeed, peer support and feedback plays a crucial role in reflection on and changes to teaching practices—and, ultimately in the personal growth of the instructor (Brockbank & McGill, 2007; Peel, 2005). Our goal was to steer the collection of teaching observation data toward open-ended standard fields and to provide an efficient way to collect and retain that data in order to strengthen the transformative potential of teaching observations and, crucially, the discussion following the observations.

Moreover, since all observations are stored in one place—potentially across a series of semesters or years—the solid record Chism recommends is enhanced by our use of technology: instructors and reviewers can potentially review observation notes from a series of semesters, courses, and different observers to develop a more comprehensive record and assess changes over time. Data collection in this manner supports the recommendations of Hammersley-Fletcher and Orsmond (2004; 2005) that insights from peer observations be tied to an ongoing department- or university-wide professional development process focused on particular teaching and learning themes. With an eye toward assisting observers in providing useful feedback grounded in examples drawn from the observation itself, our tool directly addresses issues that complicate the utility and applicability of teaching observations. Our engagement with these concerns throughout the development process ensures that teaching observations remain a valuable tool for the future of faculty development at TCU.

In this article, we discuss the process of designing and implementing a digital classroom observation tool that provides both standards and structure to the observation process while still honoring a diversity of classroom experiences. We then discuss the on-campus partnerships required to make such a project possible: The Center for Teaching Excellence forged relationships with our Information Technology and Security teams in order to build the tool and add it to TCU's information architecture. Additionally, we worked with graphic and instructional designers to create a product that incorporated visual appeal and usability with best practices for teaching observation. Our goal was to make the observation process, with all its complexities, easier. While the bulk of our discussion will focus on the method and development of our observation tool, we conclude this article by sharing lessons learned, which may be particularly helpful to other institutions interested in employing technology in the context of campus-wide teaching observations.

The Texas Christian University Campus Community: Forming Partnerships

As we share the process of developing a classroom observation tool, it might be helpful for readers to know a little about the people—students and faculty members—who are usually in these classrooms. Texas Christian University (TCU) is a private, liberal-arts university in Fort Worth, Texas. In the 2014–2015 academic year, TCU enrolled just over 10,000 students. The vast majority of this population is engaged in undergraduate study; under 1,200 students are pursuing graduate degrees. TCU employs roughly 500 full-time, non-unionized faculty members. The university adheres to the teacher-scholar model and consistently encourages faculty to pursue research questions drawn from their teaching. Likewise, faculty members are also encouraged to find teachable moments in their research by including graduate and undergraduate students in research projects. The physical TCU classroom, too, is diverse in its iterations. The campus houses performance spaces, art studios, science labs, child observation rooms, high-technology classrooms, and collaborative learning spaces with furniture that can be reconfigured to suit the needs of each class. As we set out to develop a classroom observation tool, we knew we would need to think broadly about our definitions of *classroom* and perhaps even *teaching*—updating the way we approached teaching observations would require us to engage with these concepts so that we could craft a valuable faculty development tool that would keep pace with future changes. As a faculty development exercise, teaching observations are only useful if they reflect the reality of the faculty experience rather than recycling and reifying older understandings of what an effective classroom presence looks like. We thus wanted a tool that helped collect information on standard presentation fundamentals, student engagement, and the use of classroom technologies all while providing for the breadth of teaching experiences on our campus.

The TCU William H. Koehler Center for Teaching Excellence's mission is to support teaching and learning in our campus community. The resources and activities of the Koehler Center both respond to the present needs of instructors as well as inform the TCU community about the new educational possibilities created by the continuing development of pedagogical theories, teaching practices, and technologies. The center thus offers workshops and trainings to support teaching in the "traditional," face-to-face setting as well as online; promotes the teacher-scholar model through our Center Fellows program and Teaching and Learning Conversations; and oversees TCU's distance learning program as well as supports our learning management system.

While the center contributes to and implements university policy, the staff works primarily at the class level. The Koehler Center staff is small relative to our faculty body: we have eight full-time employees to work with the 500 faculty members on campus. The Koehler Center conducts classroom observations upon request throughout the regular semester as part of our larger voluntary consultation program. However, it is impossible for the staff to observe all faculty on campus as doing so would tax the center's resources significantly. Moreover, the Koehler Center offers only formative evaluations. We do not perform the summative evaluations often used in end-of-year reports or retention decisions; these evaluations are done at the department level. To that end, the center has offered classroom observation and teaching evaluation trainings for faculty members, department chairs, and occasionally entire departments or programs. These observation trainings address best practices for formative evaluations. However, given the size of the faculty, it is impossible to reach everyone conducting these types of teaching evaluations. The Center for Teaching Excellence hoped that partnering with our Information Technology team would help us solve this problem of scale by using technology to distribute a carefully constructed observation tool to a large audience.

Solving everyday, real-world problems with technology can often prove to be incredibly intricate. The challenge is always to use technology to make the task more seamless and less complex than the non-technological route. Ultimately, if a technology-based solution increases the hours needed to complete the task or the complexity of the task, then it will not be a success. Thus, our guiding principles were flexibility—in terms of devices, classrooms, and disciplines—and user-friendliness.

The Problem

On the TCU campus, departments conduct their own teaching evaluations for tenure/promotion, hiring/re-hiring, and formative input in the post-tenure review process. Yet, few departments on campus use a standardized peer observation form, nor does the university provide such a form for teaching evaluations done by colleagues. It was unclear at the outset of this project how—or if—departments retained any observation data they had gathered and whether this data was ever revisited to assess growth in instructional practice or departmental learning outcomes. Responding to this lacuna, we saw a chance to use technology to solve this constellation of problems related to the collection and storage of teaching observations. We could employ the power of existing campus networks—both digital and interpersonal—to promote best practices without having a faculty developer present at every teaching observation.

The classroom observation tool goes to faculty rather than the opposite, operating as a creative and responsive solution to the needs of higher education. Once this distributed observational model took hold, every interaction would directly reach two instructors: the observer and the observed. From a faculty development perspective, we strongly felt that by asking the right questions—relying on a strong template and, thus, measuring the things that mattered—the center could efficiently support the future of instruction on campus. Moreover, the center could do so by providing a true active learning experience without the budget outlay associated with a keynote speaker, lunch and learn, or other big-ticket events. Like many campus teaching centers facing both financial constraints and the limits of faculty time and energy, we wanted to bring meaningful professional development to the instructors' classrooms.

There are other professional opportunities for our faculty members inherent in this tool. In addition to improving teaching and learning in current and subsequent semesters, the observation tool also archives a reproducible record of effective teaching along with an illustration that builds a portfolio of teaching. We anticipate this tool having value for adjunct, tenure-track, and tenured faculty members. We hope this record would help adjunct instructors looking for full-time positions strengthen their job applications by providing a robust view of their classroom presence. Additionally, for tenure-track faculty, classroom observations are part of the data that is discussed in letters for tenure and promotion. Finally, tenured members of the faculty undergo post-tenure review every few years; it is common practice to compare a recent teaching observation to records of observations past. The ability to store an electronic record of these observations in a secure place would make drafting letters for the job market, tenure packets, and post-tenure professional development much easier for all parties involved.

Development

Our paper observation forms and rubrics provided us with a strong roadmap of what we wanted the digital observation tool to include. However, given TCU's classroom renovations, the Center for Teaching Excellence used the design process to engage with larger questions about teaching observations: who is the audience for this data, what data is most useful for these individuals, and how could we encourage our faculty to use new technologies and integrate insights from emerging scholarship on higher education teaching and learning?

Discussion of the elements that comprise effective teaching practices and how those might best be measured are beyond the scope of this paper, but we began the design process with a fairly specific set of criteria. We drew heavily from our old paper forms for some standard fields (e.g., opening, main event, voice and pace, closing), and added new fields to reflect technological changes on our campus (e.g., wireless projection, dual projectors, writeable walls). We then thought about what innovations a device-based tool could offer us. In particular, using the touch-screen functionality of tablets, we added touch-counter buttons for questions asked by male students, questions asked by female students, late students, and off-task students. This data was previously collected via tally marks on paper notes taken during the observation. The tallying (and the associated shuffling of papers during the observation) had been a source of distraction, both for the observer, as it drew attention away from more substantive issues, and for the students in the class who were trying to focus on the instructor or their peers. As we continued to look for ways to simplify the observation process, we decided to time-stamp the comments as the observer entered them. In terms of post-observation conversations with the instructor, being able to reference when exactly a comment was made or when a transition between concepts or activities took place would be enormously valuable. We discuss both of these features in more detail below.

Last, reflecting on the future of instruction on our campus, the ability to capture the dynamic layout of the instructional space was especially appealing from a faculty development perspective. Reviewing an image of the physical classroom setup would be helpful in thinking about what aspects of the class had succeeded or might be improved. However, student privacy concerns and the need to obtain permission from all students before photographing the class complicated taking pictures during observations. Thus, a way to use a finger, stylus, or mouse and an integrated drawing program to sketch the classroom layout and append this to the completed observation was a desired component in a digital observation tool.

We did not set out to design our own observation tool. In fact, the staff from the Center for Teaching Excellence first looked at a few commercially available observation tools and apps, but they each had their own flaws: a K–12 language or focus that would not necessarily serve our instructor population, a cumbersome template process or no templates at all, or a cost calculation based on the number of instructors at our campus (rather than the number of initial users). Some forms did not allow touch counting, did not allow drawing, or simply did not have a smooth user interface. We discarded models built around rubrics with criterion-referenced standards because we did not wish to characterize instructional practices (e.g., exemplary, advancing, performing, needs improvement) or even specify what particular elements should be present. Rather, we hoped to set the stage for a productive and focused conversation between peers with a tool that honored disciplinary expertise and practices.

Given these constraints, the center sought to leverage the information technology resources already on our campus by partnering with TCU's Enterprise Application Services. We built a tool to suit our campus needs and culture; faculty developers at other institutions might follow a similar path reflecting their local priorities. We provide the detailed technical information below as a starting point for conversations between faculty developers and information technology staff on other campuses. Additionally, the authors are glad to provide assistance and welcome email contact from interested parties.

After hearing our needs, the TCU information technology team decided that an open source solution was the best way to allow for the customization required to meet the specific needs of our campus. In particular, open source technologies were employed for various degrees of application and user-interface functionality. From a technical perspective, the classroom observation tool has three main components:

- Software: PHP, JavaScript, Ajax, jQuery, FPDF, HTML5, Canvas
- Hardware: Linux servers, Red Hat products
- Storage and security: All data is stored in a MySQL Database. TCU Systems, Networks, and Database Administrators are responsible for security.

The Enterprise Application Services team used the following open source libraries to build the observations application:

- Signature Pad, an HTML5, Canvas-based drawing tool (https://github.com/szimek/signature_pad)
- FDFP, an open source PDF creation tool (http://www.fpdf.org/)
- jQuery, an open source JavaScript Tool (https://jquery.com/)
- PHP, an open source server-side object oriented language (https://secure.php.net)
- MySQL, an open source relational database (https://www.mysql.com/)

An early version of the observation tool used the open source code base of Python and the Django Python framework to build out the form structure. However, we soon realized that using the Django stack would be quite cumbersome. Django was too large a code base for us to use in concert with the libraries and plugins that were required to power the custom forms we needed. We concluded that a more efficient implementation would be to code a custom solution using the server-side open source language PHP and store the data in the open source MySQL database environment.

The TCU Application Enterprise Services team was eager to help the Center for Teaching Excellence find a solution. As campus data and data services become more relevant at the classroom level, we expect partnerships between teaching centers and campus Information Technology departments to increase dramatically. Beyond the hefty job of coordinating communication with campus learning management systems, Information Technology departments sometimes have little to do with the craft of teaching. However, TCU's strong identity as a teaching institution requires that every department on campus support teachers and learners. This project was a welcome opportunity to cement those existing relationships and move forward together. Our partnership proved to be enormously fruitful. From the dialogue that began with our wishlist, through early revisions, to the delivery of a very high-quality first version, the development of the tool took 18 months.

Fulfilling the Wishlist

Counting Tool

Leveraging the functionality of the touchscreen, touch counters for questions asked by male students, questions asked by female students, late students, and off-task students are a significant advantage of the digital observation tool. These buttons float with the active field in the observation form, thereby reducing the need for scrolling and allowing the observer to quickly record data while taking more detailed notes in other fields (see Figure 1).

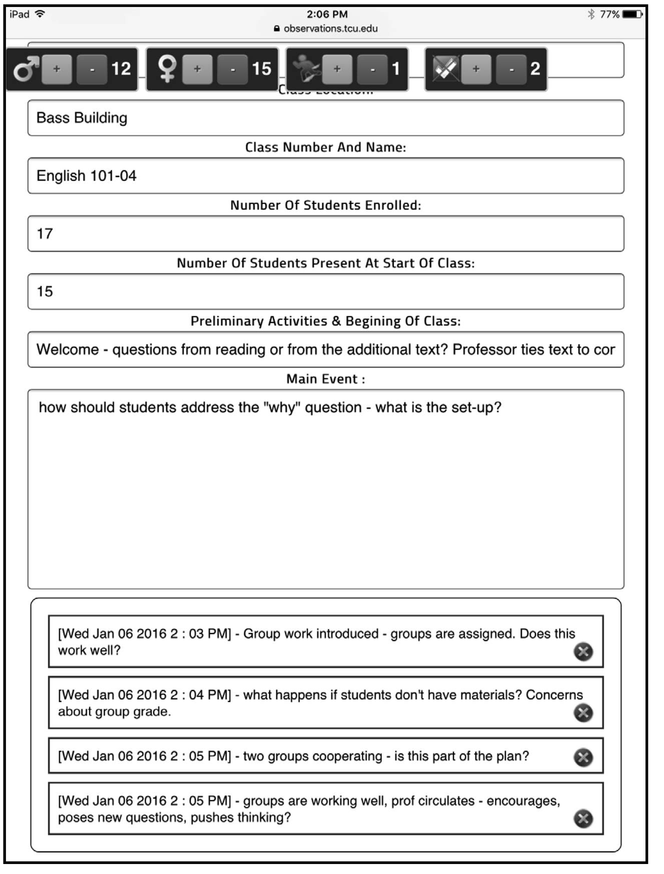

Figure 1. The button clickers float with the active field in the observation form, thereby minimizing the scrolling needed for the collection of classroom data.

A visual implementation of JavaScript, HTML, and CSS created the appearance of button counters. The math functionality of addition and subtraction on the counters is completely controlled by JavaScript; this flexibility allows the observer to correct her count data, should she erroneously tap a button. The entire responsive web form contains all the data and holds it for the entire observation. At the end of class, the observer submits the form data and is offered a confirmation option that indicates the observation will now be finalized (see Figure 2).

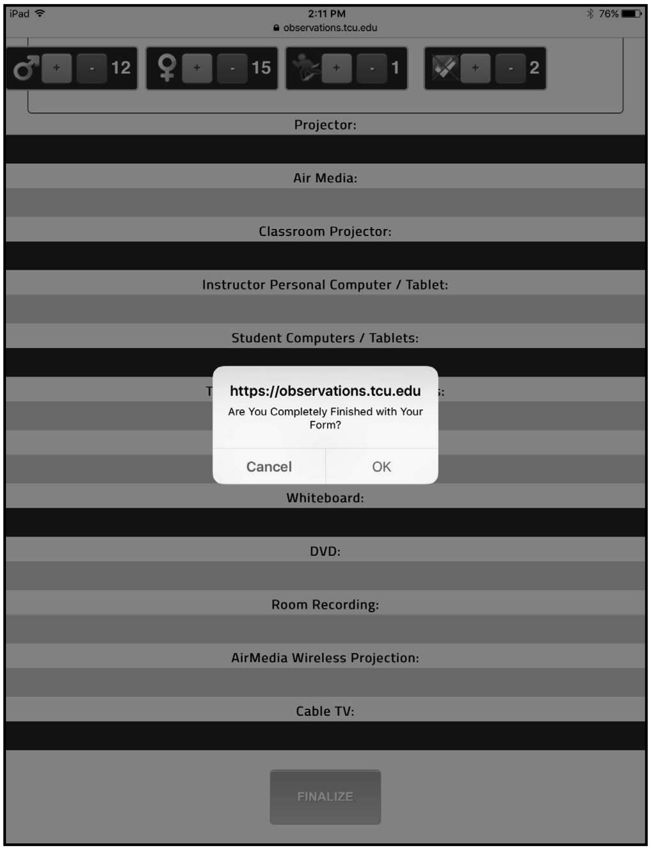

Figure 2. A confirmation window asks observers if they wish to finalize the observation.

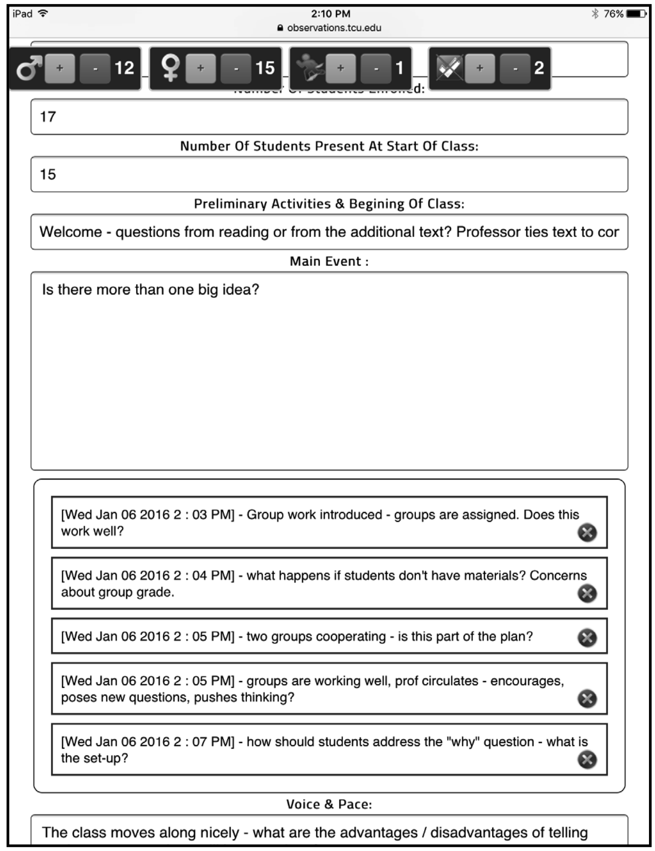

Figure 3. The time-stamped comments feature allows observers to take minute-by-minute detailed notes. When the return is hit, the tool time-stamps the comment and adds it to a running table.

Time-Stamped Comments

In addition to counting key classroom indicators of equity and engagement, we also designed the observation tool to provide high-quality, instructor-specific data about the experience of a given class. We thus wanted very detailed notes about the central activity in that class period. We included a "Main Event" field, which is a text entry box that allows the observer to record her impressions. Then, when she hits enter, the time is automatically appended and the commentary is added to a running table on the observation form itself. The table lists entries from the top in chronological order, meaning that one can read the observer's notes as a moment-by-moment summary of the core of the class (See Figure 3).

This data is tremendously valuable, offering insight not only about the pace of the class but also grounding a discussion in best practices like activating prior knowledge, promoting student engagement, facilitating active learning activities, and creating authentic tasks. The time-stamped comments feature greatly strengthens the quality of the observational data and is a vast improvement over the previous paper-driven system in which it was up to the observer to choose to note the time when events took place during the class period and then to do so consistently throughout the observation.

The time-stamped comments component was custom-created utilizing JavaScript and the open source jQuery library. As jQuery and JavaScript are both browser/client side languages that are universally used and compatible across tablets, smartphones, laptops and desktop computers, the time-stamped comments field was, by design, device-agnostic. JavaScript-based jQuery functions were written that control the entirety of application user interface.

Drawing the Classroom

Since there are diverse learning spaces on campus, it was important for the observer to be able to quickly draw the classroom setting. The drawing functionality is device-agnostic, allowing the observer to use a mouse, touchpad, stylus, or touchscreen to depict basic elements of the classroom space (see Figure 4).

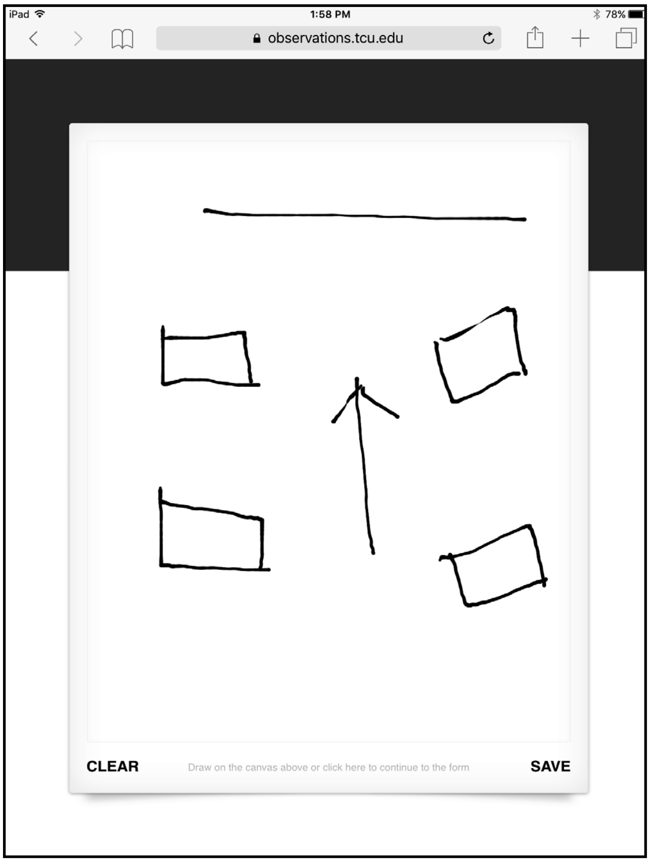

Figure 4. Acknowledging the important role that the design of the physical space has in facilitating learning, the classroom observation tool allows for a brief sketch of the classroom layout to be appended to a classroom observation.

From a technical perspective, the Application Enterprise Services team decided to capture and save the classroom drawing using a Base64 image encoder. The Base64 image data was then stored directly into the corresponding MySQL database field. Early in testing, we discovered that the classroom drawings created on iPads were significantly larger files than those created on laptops, due to the pixel density differential between a laptop and the iPad retina display. The images created on the iPads resulted in a massive increase in the length of the Base64 string, which meant we had to increase the amount of data storage for that particular data field. To address this, the Applications Enterprise Services team increased the MySQL database data type.

Security

In thinking about how best to store, access, and share the observational data, a key concern was how we might balance maintaining confidentiality with promoting review of the observation data by the parties involved. The finished observation, including the classroom illustration, is emailed to the observer as a PDF. The observer can then forward the results to the instructor, use the results as a basis for a reflective letter on the classroom experience, or—our preferred option—print the observation and discuss the results with the instructor (See Figure 5).

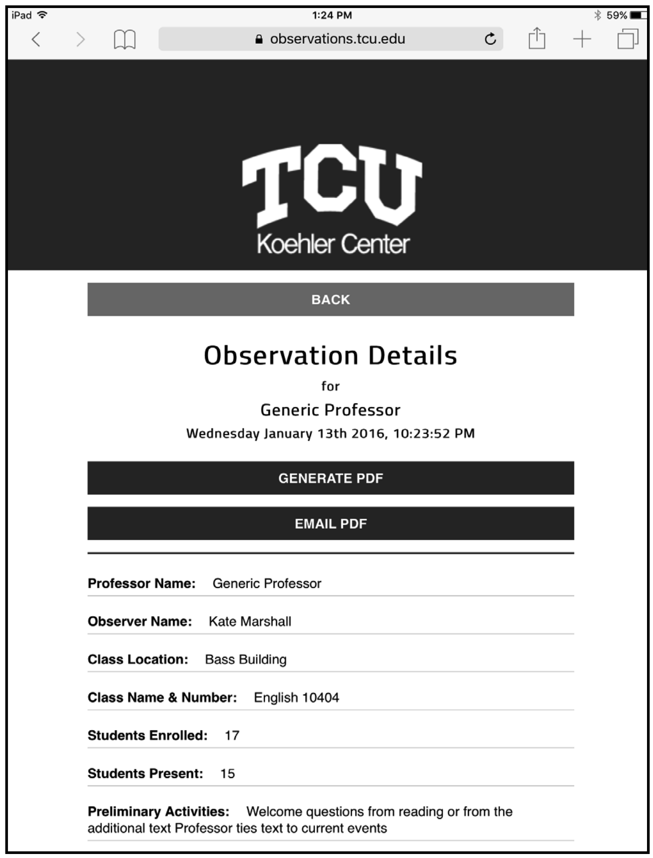

Figure 5. The observer can opt to view the observation as a PDF or send it as an email to a recipient of her choosing; an email with the completed observation is automatically sent to the observer.

A copy of the observation is also retained in the database, accessible by the observer for as long as she has TCU network credentials. The larger security architecture has a nested function in the core of the application that records all application usage and interactions. Documented data for every saved interaction includes the username, date and time stamp, and the user's IP address.

Because of the nature of the application, the observation data that is displayed is controlled by a Get-variable in the URL, which poses a slight security risk. The Get-variable used to retrieve the particular observation data is visible to the user as part of the web address for the msite webpage (see Figure 6).

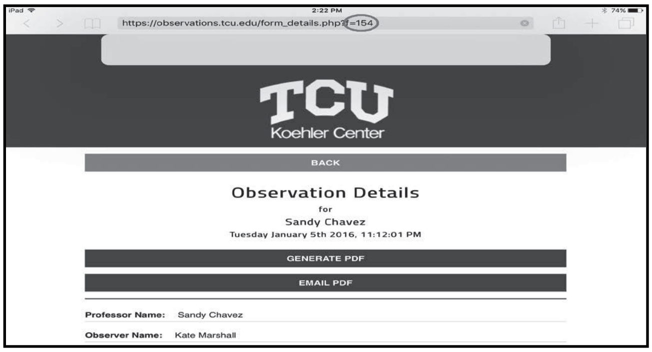

Figure 6. The unique Get-variable attached to each observation is a visible part of the URL; this security risk has been addressed.

Thus, a user could modify the Get-variable in an attempt to view other observations. However, we mitigate this security risk in several ways. First, the application continually checks each page to make sure that the user is viewing observation data attached to her own login credentials; if the user is trying to view other content, the application prevents viewing and halts the page load. Second, the tool not only records all interactions, but also all attempted access efforts related to other observations. Finally, because our observation tool sits on the campus intranet and is not accessible outside the campus network, the only way a user can access the observation tool is if she is on the university network and also has an enabled account within the application itself.

Data retention is also a concern, as another goal of the observation tool was to create both institutional and individual records of growth in instructional practice. Such reflection is only possible with data collected over time. Thus, we prioritized preserving the data and access to that data. User-managed access is built into the application; that is, eventually access to the observation tool will not rest with Information Technology, but with the Koehler Center or with individual departments. However, the application does not provide users with the functionality to delete completed observations. If an observation tool account administrator were to delete a user's account, this action simply removes the ability of that user to log into the observation tool; any observations completed by the user would remain in the system. If a user were to leave the university, TCU's Enterprise Application Services would write a custom MySQL query to update the owner of those observations to another user within the designated academic department, such as the department chair. This process ensures that all completed observations remain part of the institutional record.

Conclusion: Lessons Learned and Looking Forward

We had many goals for the observation tool, including:

- Promoting high-quality observations.
- Improving the experience of recording observations.
- Focusing on how our campus values teaching and learning.
- Retaining and accessing the teaching observation data.

Because our center offers many workshops, we were able to test the design in a low-stakes environment by conducting observations on our own events. Not only were we able to practice recording feedback, but we also investigated the user experience related to data storage and retrieval. We also tested the tool in real-time observations (always paired with another method), and have been able to troubleshoot and make small adjustments. We learned, for example, that the tool operates best on certain web browsers. We've also asked members of the Faculty Senate subcommittee on teaching evaluation to work with the tool and offer feedback, which will be a crucial step in the development of the distributed peer-to-peer solving problems with technology model.

The project is still in the early stages. We designed the observation tool to take advantage of the ubiquity of tablets, making a high-quality observation form easier to complete and data resulting from that form easier to retain. The premise was simple: If we could provide an easy and flexible way to measure what mattered, the quality of observational feedback should improve to the benefit of students, instructors, and the whole institution. We hope that as focused conversations about teaching and learning take place on this campus, traffic to our center increases. As faculty receive data on what works in *their* classrooms—not just the classroom—the quality of teaching and learning on campus rises ever-higher.

For the future, we hope to see other faculty development centers engage with how teaching observations can best serve the instructors and the diverse classrooms of the future; how data collection can be made easier, more valid, and more reliable; and how data retention and accessibility can be made an equally important part of the teaching observation process. The teaching observations of the future will need to excel in all three of these dimensions in order to provide useful feedback for instructors, observers, and university programs. Given the complexity of the task and the importance of the observations for instructors' careers, we think a digital tool offers significant advantages in terms of user experience and data longevity. In addition, the distributed digital model of teaching observations discussed above provides these data collection and security benefits without sacrificing the potential for academic units to work with faculty development centers to design their own templates. Indeed, with calls for increased data related to programmatic outcomes, we might also expect the future to bring growth in teaching observations that address individual departments or programs while holding fast to larger standards.

To be a teaching institution means, first and foremost, that the university takes seriously the concept of teaching as craft and that the effort required for constant improvement as a teacher is rewarded. We also hope that instructors embrace their own evaluations, making them part of their teaching portfolios. As such portfolios grow in necessity for the job market, we hope that the high-quality observations produced with the aid of our observation tool provide those just starting their academic careers with meaningful artifacts and professional development that the job market truly values. Beyond the individual instructor, we also wanted to be sure that the data would be preserved as an institutional record. A teaching observation represents a fair amount of work on the part of the observer; for this labor to fade into obscurity after the initial feedback has been provided is a wasted opportunity. Our digital teaching observation tool allows the data to be reviewed and accessed even if the observer, relevant department chair, or observed leaves the university. By allowing for this type of data retention, teaching observations can also add to the eventual assessment of departmental, programmatic, and university-wide goals.

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